LISTING OF CLAIMS

1. (previously presented) A method for modulating sub-carrier symbols F(k) to an intermediate-frequency OFDM signal (f(n)) having even and odd samples, the method comprising the steps of:
- transforming a number N of the sub-carrier symbols F(k) to pre-processed sub-carrier symbols Z(k) according to the function:

$$Z(k)=\frac{1}{2}\cdot\left[F(k)+F(N-k)^{*}\right]+\frac{1}{2}\cdot j\cdot\left[F(k)-F(N-k)^{*}\right]\cdot e^{+j\pi k/N}$$

with k=0…N-1;
- performing a complex inverse discrete Fourier transformation (IDFT) on the pre-processed sub-carrier symbols Z(k) to generate complex output symbols z(n); and
- transforming the complex output symbols z(n) to the intermediate-frequency OFDM signal (f(n)), by multiplexing the real and imaginary parts of the complex output symbols z(n) into even and odd samples of the intermediate frequency OFDM signal (f(n)).

2. (currently amended) Method according to claim 1 further comprising the steps of:
- assigning the sub-carrier symbols F(k) to a spectrum F(i) with i=0…2N-1 of the intermediate-frequency OFDM signal (f(n)), negative frequency contents being derivable from the symmetry property of spectra of real sequences, $F(i)=F(2N-i)^{*}$;
- converting the sub-carrier symbols F(k), with k=0…N-1, to the pre-processed complex sub-carrier symbols

Z(k) using the symmetry property of spectra of real sequences, wherein ~~Z(k)=X(k)+j*Y(k)~~ Z(k)=X(k)+j•Y(k) with X(k) and Y(k) defining the spectra of real sequences x(n) and y(n); and

- performing the complex inverse discrete Fourier transformation(IDFT) of the pre-processed complex sub-carrier symbols Z(k) into the complex output symbols ~~z(n)=x(n)+j*y(n)~~ z(n)=x(n)+j•y(n).

3. (previously presented) Method according to claim 1, wherein the complex inverse discrete Fourier transformation (IDFT) is performed as an inverse fast Fourier transformation (IFFT).

4. (currently amended) A method for demodulating an intermediate-frequency OFDM signal (f(n)) having even and odd samples to post-processed sub-carrier symbols F(k), the method comprising the steps of:

- transforming the intermediate-frequency OFDM signal (f(n)) to complex input symbols z(n), by de-multiplexing the even and odd samples of the intermediate-frequency OFDM signal (f(n)) onto the real and imaginary parts of the complex input symbols ~~z(n)=x(n)+j*y(n)~~ z(n)=x(n)+j•y(n) with x(n)=f(2n) and y(n)=f(2n+1) with n=0…N-1;

- performing a complex discrete Fourier transformation (DFT) on the complex input symbols z(n) to generate complex DFT output symbols Z(k); and

- transforming the complex DFT output symbols Z(k) to the post-processed sub-carrier symbols F(k) according to the function:

$$F(k) = \frac{1}{2} \cdot \left[Z(k) + Z(N-k)^*\right] - \frac{1}{2} \cdot j \cdot \left[Z(k) - Z(N-k)^*\right] \cdot e^{-j\pi k/N}$$

with k=0…N-1.

5. (previously presented) Method according to claim 4, wherein the complex discrete Fourier transformation (DFT) is performed as a fast Fourier transformation (FFT).

6. (currently amended) Method according to claim 4, further comprising the steps of:
   - performing the complex discrete Fourier transformation (DFT) of the complex input symbols z(n) into the complex DFT output symbols ~~Z(k)=X(k)+j*Y(k)~~ Z(k)=X(k)+j•Y(k) with k=0…N-1, X(k) and Y(k) being the spectra of the real sequences x(n) and y(n);
   - post-processing of the complex DFT output symbols Z(k) with k=1…N-1 to the post-processed sub-carrier symbols F(k)= X(k)+$e^{-j\pi k/N}$·Y(k) of the intermediate-frequency OFDM signal (f(n)); and
   - assigning the post-processed sub-carrier symbols F(k) to an order for further processing.

7. (previously presented) A computer program element comprising program code means for performing the method of claim 1 when said program is run on a computer.

8. (currently amended) A computer program storage device storing ~~product stored on a computer usable medium~~, ~~comprising~~ computer readable program code ~~means~~ for causing a computer to perform the method according to claim 1.

9. (currently amended) An orthogonal frequency division multiplex modulator ~~(1)~~ for modulating sub-carrier symbols F(k) to an intermediate-frequency OFDM signal (f(n)) having even and odd samples, the modulator comprising:

- first transforming means for transforming a number N of the sub-carrier symbols F(k) to pre-processed sub-carrier symbols Z(k), adapted to perform the according to the function:

$$Z(k) = \frac{1}{2} \cdot \left[F(k) + F(N-k)^* \right] + \frac{1}{2} \cdot j \cdot \left[F(k) - F(N-k)^* \right] \cdot e^{+j\pi k/N}$$

with k=0…N-1;

- IDFT means for performing a complex inverse discrete Fourier transformation (IDFT) on the pre-processed sub-carrier symbols Z(k) to generate complex output symbols z(n); and

- second transforming means comprising a multiplexing means for multiplexing of the real and imaginary parts of the complex output symbols z(n) into even and odd samples of the intermediate-frequency OFDM signal (f(n)).

10. (previously presented) Orthogonal frequency division multiplex modulator according to claim 9, wherein the IDFT means exhibits the functionality to perform an inverse fast Fourier transformation (IFFT).

11. (currently amended) Orthogonal frequency division multiplex modulator according to claim 9, wherein the first transforming means further comprises:

- assigning means for assigning the sub-carrier symbols

F(k) to a spectrum F(i) with i=0…2N-1 of the intermediate-frequency OFDM signal (f(n)), negative frequency contents being derivable from the symmetry property of spectra of real sequences, $F(i)=F(2N-i)^{*}$;
- converter means for converting the sub-carrier symbols F(k), with k=0…N-1, to the pre-processed complex sub-carrier symbols Z(k) using the symmetry property of spectra of real sequences, where ~~Z(k)=X(k)+j*Y(k)~~ Z(k)=X(k)+j•Y(k) with X(k) and Y(k) defining the spectra of real sequences x(n) and y(n).

12. (currently amended) Orthogonal frequency division multiplex modulator according to claim 9, wherein the IDFT means is adapted to perform the complex inverse discrete Fourier transformation (IDFT) of the pre-processed complex sub-carrier symbols Z(k) into the complex output symbols where z(n) ~~z(n)=x(n)+j*y(n)~~ z(n)=x(n)+j•y(n).

13. (previously presented) Orthogonal frequency division multiplex modulator according to claim 9, wherein the first transforming means and the IDFT means are integrated into one device.

14. (currently amended) An orthogonal frequency division multiplex demodulator for demodulating an intermediate-frequency OFDM signal (f(n)) having even and odd samples to post-processed sub-carrier symbols F(k), the demodulator comprising:
- third transforming means comprising de-multiplexer means for de-multiplexing the even and odd samples of the intermediate-frequency OFDM signal (f(n)) onto the

real and imaginary parts of the complex DFT input symbols ~~z(n)=x(n)+j*y(n)~~ z(n)=x(n)+j•y(n) with x(n)=f(2n) and y(n)=f(2n+1), with n=0…N-1;

- DFT means for performing a complex discrete Fourier transformation on the complex input symbols z(n) to generate complex DFT output symbols Z(k);
- fourth transforming means for transforming the complex DFT output symbols Z(k) to the post-processed sub-carrier symbols F(k), adapted to perform the function:

$$F(k) = \frac{1}{2} \cdot \left[Z(k) + Z(N-k)^{*}\right] - \frac{1}{2} \cdot j \cdot \left[Z(k) - Z(N-k)^{*}\right] \cdot e^{-j\pi k/N}$$

with k=0…N-1.

15. (previously presented) Orthogonal frequency division multiplex demodulator according to claim 14, wherein the DFT means exhibits the functionality to perform a fast Fourier transformation (FFT).

16. (currently amended) Orthogonal frequency division multiplex demodulator according to claim 14, wherein the DFT means is adapted to perform the complex discrete Fourier transformation (DFT) of the complex input symbols z(n) into complex DFT output symbols ~~Z(k)=X(k)+j*Y(k)~~ Z(k)=X(k)+j•Y(k), with k=0…N-1, where X(k) and Y(k) are the spectra of the real sequences x(n) and y(n).

17. (currently amended) Orthogonal frequency division multiplex demodulator according to claim 14, wherein the fourth transforming means further comprises:

- post-processing means for post-processing of the

complex DFT output symbols Z(k), with k=1…N-1, to the post-processed sub-carrier symbols ~~F(k)= X(k)+exp(-j*pi*k/N)*Y(k)~~ $\underline{F(k)= X(k)+e^{-j\pi k/N}\cdot Y(k)}$ of the intermediate-frequency OFDM signal (f(n));

-assigning means for assigning the post-processed sub-carrier symbols F(k) to an order for further processing.

18. (previously presented) Orthogonal frequency division multiplex demodulator according to claim 14, wherein the DFT means and the second transforming means are integrated in one device.